

New Pest Threat in Orchards – Brown Marmorated Stink Bug

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The brown marmorated stink bug (BMSB), *Halyomorpha halys*, is native to East Asia, where it is considered a pest damaging many crops. It was first officially identified in North America from specimens collected in Allentown, Pennsylvania in 2001, but is suspected to have been present since 1996, perhaps entering in ship containers. Large populations are now established in the mid-Atlantic region from Virginia to Pennsylvania and lower New York State where severe losses to many crops occurred in 2010. It is known to be established in 15 states and specimens have been detected in another 14 states.

BMSB is a very serious pest because it feeds on a very wide range of host plants and can attain very high population levels on some. It is difficult to control for several reasons: 1) most of the damage occurs between 26-60 days before harvest; 2) it is highly mobile, being more active in the evenings and at night and moving continuously between the crop, weeds and adjacent vegetation; and, 3) high population levels require repeated application of highly toxic insecticides, thereby dismantling current integrated pest management programs for many crops.

BMSB aggregates in very large numbers seeking winter shelter in buildings and houses, and hence has become a serious nuisance in urban areas. It is an excellent “hitchhiker” and so has spread rapidly from the eastern US to



The adult BMSB has smooth shoulders, banded antennae and dark bands on membranous tip of forewing.

Photo: njaes@rutgers.edu

the West Coast where it is found in large numbers in the Portland, Oregon metropolitan area (though it has yet to invade the major commercial agricultural areas in that state). According to the Western Plant Diagnostic Network First Detector Newsletter (Vol. 3 (4), Winter 2011), it has been detected in nine counties in California since 2002 and has been intercepted numerous times at border stations. These detections have been associated with vehicles or belongings arriving from the eastern U.S. It is considered to be established, however, only in some highly urbanized cities in Los Angeles County, since 2006.

Host Range and Damage

In Asia, BMSB is reported to feed on over 300 host plants including tree fruit, vegetables, shade trees and leguminous crops. It is a most serious pest in apple, cherry, peach, pear, plum, citrus, lima beans and fig. In 2010 in the mid-Atlantic, the crops most affected were apple, pear, apricot, cherry, peach, nectarine, lima bean, snap pea, pepper, sweet corn, tomato, field corn and soybean. Other identified hosts include raspberry, blueberry, grape, hazelnut, pecan, cucumber, and pole and bush bean. The damage in fruits is primarily due to the corky internal damage caused by feeding with piercing and sucking mouthparts.



Later stages of BMSB have pale bands on the antennae and legs. Photo credit: Gary Bernon, USDA APHIS



BMSB on peach. Photo courtesy of Peter Shearer, OSU.

Be on the Alert • Know How to Identify it

The adult BMSB is 0.55 to 0.67 inch (14-17 mm) long, speckled brown. It has copper, bluish-metallic tinted depressions on the head and shield. It can be distinguished from other stink bugs of comparable size and color by the following characteristics: the antennae have two distinct white bands; the margin of the shoulder (thorax) is smooth; the membranous parts of the forewings have dark bands at the tip; and there is a black and white pattern at the edge of the abdomen to the side of the wings.

Eggs are barrel-shaped, laid in clusters of approximately 28 on the underside of leaves. The newly hatched nymph has an orange abdomen with dark brown plates and brown head and thorax. It goes through five stages, has dark red eyes and develops wing pads with each successive molt, becoming darker with various shades of brown. It has distinct pale bands on the antennae and legs.

Nymphs first aggregate around the egg mass, then later stages disperse.

Life Cycle

BMSB overwinters as an adult in a state of facultative diapause (resting stage). It becomes active in the spring and, after feeding for about two weeks, mates, and the female begins to lay eggs, with a range of 212 to 486 per lifetime. In the mid-Atlantic it has one generation per year

in Pennsylvania, and two in Maryland. The number of generations may be greater in southern areas. Up to six generations have been reported in southern China.

There are no official California Department of Food and Agriculture surveys currently being conducted. **If you spot it please report it!**

As BMSB expands its range on the West Coast it will likely continue to be first found in urban areas. Anyone who finds specimens that appear to be brown marmorated stink bug should report them to their local Agricultural Commissioners Office or UC Cooperative Extension Office. 🐞



First stage BMSB aggregate around egg mass. Photo: Gary Bernon, USDA APHIS



BMSB damage on Golden Delicious apple in a Pennsylvania orchard. Photo: Rachel Elkins, UCCE